

CLAIMS

This complete listing of claims replaces all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) An absolute coordinate single control element device that enables user control of a computer cursor and emulation of mouse clicks in a computer, the device comprising:

a single control element manipulable by a user of said device;

a surface defining an x-y plane whereon said single control element is manipulable by said user;

means for resolving user movement of said single control element relative to said x-y plane of said surface and for outputting a computer recognizable signal therefrom, said means including:

a reflective element coupled for movement along an x-axis and a y-axis of said x-y plane responsive to movement of said single control element in said x-y plane;

at least one stationary light transmitter disposed to direct light upon said reflective element; and

at least one stationary light detector disposed to detect light from said at least one stationary light transmitter reflected by said reflective element; and

means for recognizing user manipulation of said single control element in an axis normal to said x-y plane and for discerning therefrom at least one emulated mouse click[;],

wherein a relative position of said single control element on said x-y plane of said surface provides said user with information as to a relative position of a cursor on a computer display controlled by said device.

2. (Original) The device of Claim 1, wherein said surface exhibits a dynamic coefficient of friction such that said friction between said surface and said single control element increases with decreasing rate of movement of said single control element on said surface.

3. (Original) The device of Claim 1, wherein said means for recognizing discerns at least one of a left mouse click, a double mouse click, and a right mouse click.

4. (Original) The device of Claim 1, wherein said means for recognizing discerns at least two of a left mouse click, a double mouse click, and a right mouse click.

5. (Currently Amended) The device of Claim 1, wherein said means for resolving includes[:] a pantographic mechanism having a first end coupled to said single control element, and having a second end coupled to said reflective element; ~~and,~~

~~a light emitting element and a light detecting element disposed to optically sense x-axis and y-axis movement of said single element in said x-y plane.~~

6. (Cancelled)

7. (Cancelled)

8. (Currently Amended) The device of Claim 1, further comprising means for communicating the computer recognizable signal output from said device to said computer wirelessly. ~~wherein said means for resolving includes a pantographic mechanism coupled to said single control element.~~

9. (Original) The device of Claim 1, wherein said single control element is manipulable by a single finger of said user.

10. (Original) The device of Claim 1, wherein said single control element is manipulable by a hand of said user.

11. (Currently Amended) The device of Claim 1, wherein said single control element is manipulable by a toe of said user.

12. (Currently Amended) The device of Claim 1, further comprising ~~wherein~~ a housing for at least a portion of said device and ~~also houses~~ a computer keyboard.

13. (Original) The device of Claim 1, wherein said device controls menu selection on a kiosk.

14. (Original) The device of Claim 1, wherein said surface is made of X-ray film.

15. (Original) The device of Claim 1, wherein said surface is made of polycarbonate material.

16. (Currently Amended) The device of Claim 1, wherein said means for resolving includes a pad disposed in contact with a lower face of said surface, said pad in response to force from said single control element on said surface outputting at least one parameter selected from a group consisting of (a) resistance change, (b) capacitance change, (c) a signal responsive to magnitude of said force, (d) a signal responsive to electrical charge, and (e) a signal responsive to light from said control element detected on said surface.

17. (Currently Amended) An absolute coordinate single control element device that enables user control of a computer cursor and emulation of mouse clicks, the device comprising:

- a single control element manipulable by a user of said device;
- a surface defining an x-y plane whereon said single control element is manipulable by said user, said surface having a dynamic coefficient of friction such that friction between said surface and said single control element increases with decreasing rate of movement of said single control element on said surface;
- a pantographic mechanism having a first end coupled to said single control element and having a second end;
- a reflective element coupled to said second end of said pantographic mechanism for movement along an x-axis and a y-axis of said x-y plane responsive to movement of said single control element;
- at least one stationary light transmitter disposed to direct light upon said reflective element; ~~and~~
- at least one stationary light detector disposed to detect light from said light transmitter reflected by said reflective element;
- means coupled to said at least one stationary light detector for outputting a computer recognizable signal responsive to detected movement of said single control element on said x-y plane; and
- means for recognizing user manipulation of said single control element in a direction normal to said x-y plane and for discerning therefrom at least one emulated mouse click[;],

wherein a relative position of said single control element on said x-y plane of said

surface provides said user with information as to a relative position of a cursor on a computer display controlled by said device.

18. (Original) The device of Claim 17, wherein said means for recognizing discerns at least one of a left mouse click, a double mouse click, and a right mouse click.

19. (Original) The device of Claim 17, wherein said means for recognizing discerns at least two of a left mouse click, a double mouse click, and a right mouse click.

20. (Currently Amended) The device of Claim 17, further ~~including~~ comprising: a housing wherein is disposed said device but for said single control element; and a computer keyboard disposed within said housing.

21. (Original) The device of Claim 17, wherein said single control element is manipulable by at least one of (a) a single finger of said user, (b) a hand of said user, and (c) a toe said user.

22. (Original) The device of Claim 17, wherein said surface is selected from a group consisting of (a) X-ray film, and (b) polycarbonate material.

23. (Currently Amended) A method to enable user control of a computer cursor and emulation of mouse clicks using an absolute coordinate single control element, the method comprising:

providing a single control element manipulable by a user in an x-y plane to move said cursor and manipulable in an orthogonal axis normal to said x-y plane to emulate mouse clicks;

providing a surface defining said x-y plane whereon said single control element is manipulable by said user, said surface having a dynamic coefficient of friction such that friction between said surface and said single control element increases with decreasing rate of movement of said single control element on said surface;

resolving user movement of said single control element relative to said x-y plane to output a computer recognizable signal therefrom by moving a reflective element along an x-axis and a y-axis of said x-y plane responsive to movement of said single control element and by sensing movement of said reflective element using at least one stationary light transmitter to direct light upon said reflective element and using at least one stationary light detector to detect light from said at least one stationary light transmitter reflected by said reflective element,

wherein movement of said single control element on said x-y plane is translated into detected movements along said x-axis and said y-axis;

~~translating movement of said control element on said x-y plane into movements along an x-axis and a y-axis;~~

~~detecting said movements along said x-axis and said y-axis, and detecting movements~~ movement of said single control element along said orthogonal axis to discern emulated mouse clicks, and

outputting a computer recognizable signal responsive to detected said movements of said single control element in said x-y plane and outputting mouse click information.

24. (Currently Amended) The method of Claim 23, wherein providing said single control element is includes providing a single control element shaped as to be manipulated by a handicapped user.

25. (Currently Amended) The method of Claim 23, wherein downward movement of said single control element along said orthogonal axis emulates one of a single mouse click and a double mouse click.

26. (Currently Amended) The method of Claim 23, wherein upward movement of said single control element along said orthogonal axis emulates a right mouse click.

27. (Original) The method of Claim 23, wherein said surface is selected from a group consisting of (a) X-ray film, and (b) polycarbonate material.